



Transforming Climate Variability and
Change Information for Cereal Crop Producers

Corn GDD

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www.AgClimate4U.org

A Little Bit about U2U



Transforming Climate Variability and
Change Information for Cereal Crop Producers



www.AgClimate4U.org



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Change Information for Cereal Crop Producers



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Helping producers make better long-term plans

AgriClimate Connection

Decision Dashboard



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Change Information for Cereal Crop Producers



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Decision Dashboard

U2U_{DST} Suite

Other Decision Resources

Agro-Climate Reports

Weather/Climate Maps

Drought Info

Climate Outlooks

Helpful Links

U2U_{DST} SUITE



AgClimate View_{DST}

A convenient way to access customized historical climate and crop yield data for the U.S. Corn Belt. View graphs of monthly temperature and precipitation,



Corn GDD_{DST}

Track real-time and historical GDD accumulations, assess spring and fall frost risk, and guide decisions related to planting, harvest, and seed selection.

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Decision Support Tools

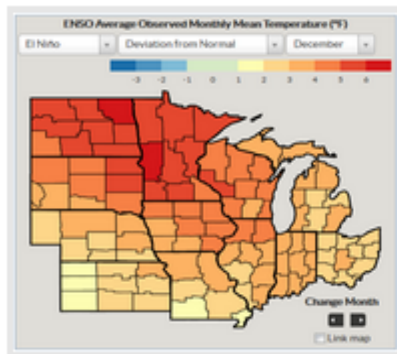


U2U_{DST} SUITE



AgClimate View_{DST}

A convenient way to access customized historical climate and crop yield data for the U.S. Corn Belt. View graphs of monthly temperature and precipitation, plot corn and soybean yield trends, and compare climate and yields over the past 30 years.



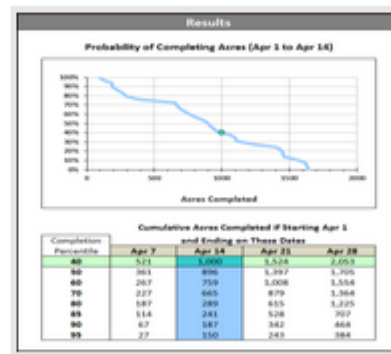
Climate Patterns Viewer_{DST}

Discover how global climate patterns like the El Niño Southern Oscillation (ENSO) and Arctic Oscillation (AO) have historically affected local climate conditions and crop yields across the U.S. Corn Belt.



Corn GDD_{DST}

Track real-time and historical GDD accumulations, assess spring and fall frost risk, and guide decisions related to planting, harvest, and seed selection. This innovative tool integrates corn development stages with weather and climate data for location-specific decision support tailored specifically to agricultural production.



Probable Fieldwork Days_{DST}

This spreadsheet-based tool uses USDA data on Days Suitable for Fieldwork to determine the probability of completing in-field activities during a user-specified time period. This product is currently available for Illinois, Iowa, Kansas, and Missouri. (Hosted by the University of Missouri)

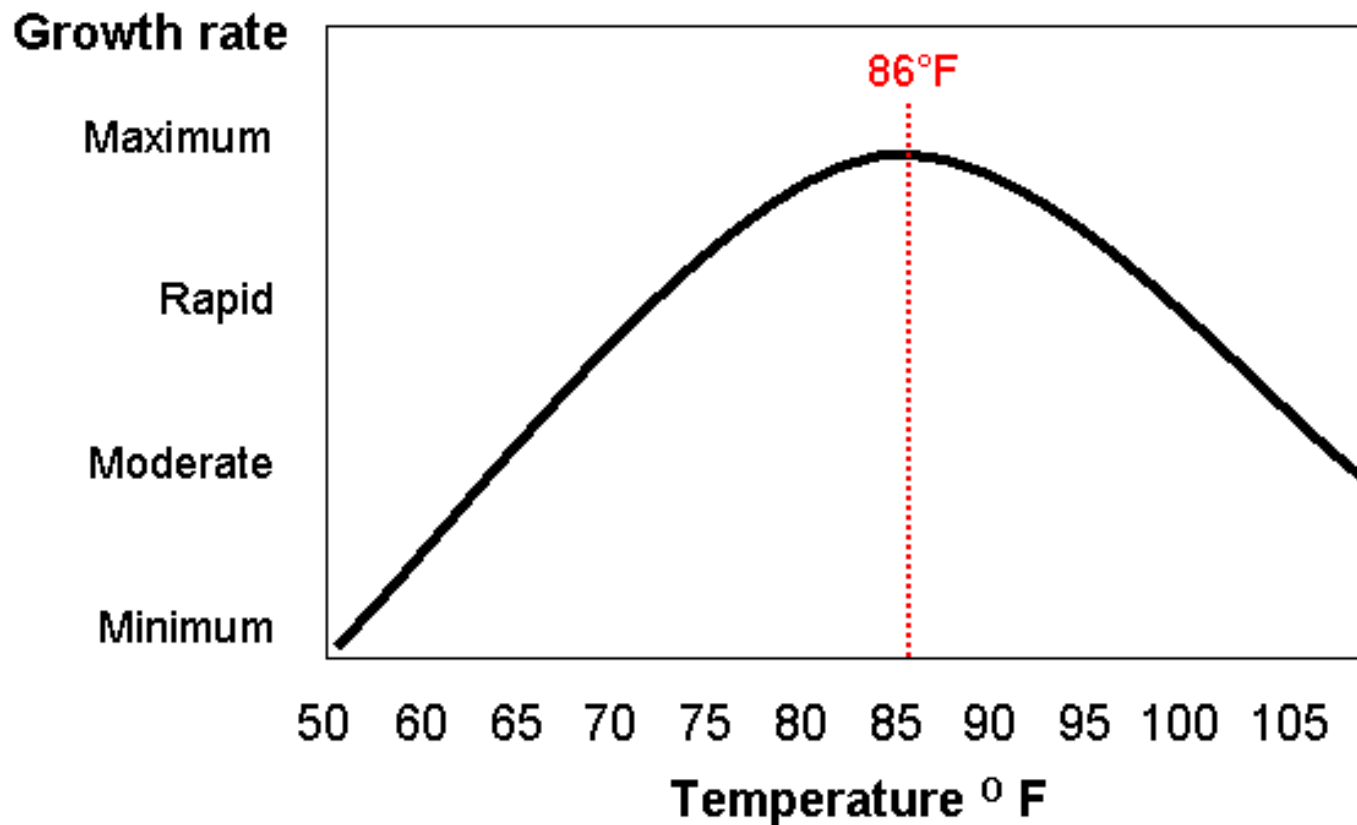
Corn Growing Degree Days



This tool puts current conditions into a 30-year historical perspective and offers trend projections through the end of the calendar year. Growing Degree Day (GDD) projections, combined with analysis of historical analog data, can help you make decisions about:

- Climate Risks – Identify the likelihood of reaching maturity before frosts/freezes.
- Activity Planning – Consider corn hybrid estimated physiological maturity requirements, along with GDD projections when making seed purchasing and other growing season decisions.
- Marketing – Look at historical and projected GDD when considering forward pricing and crop insurance purchases.

Principle Behind Growing Degree Days

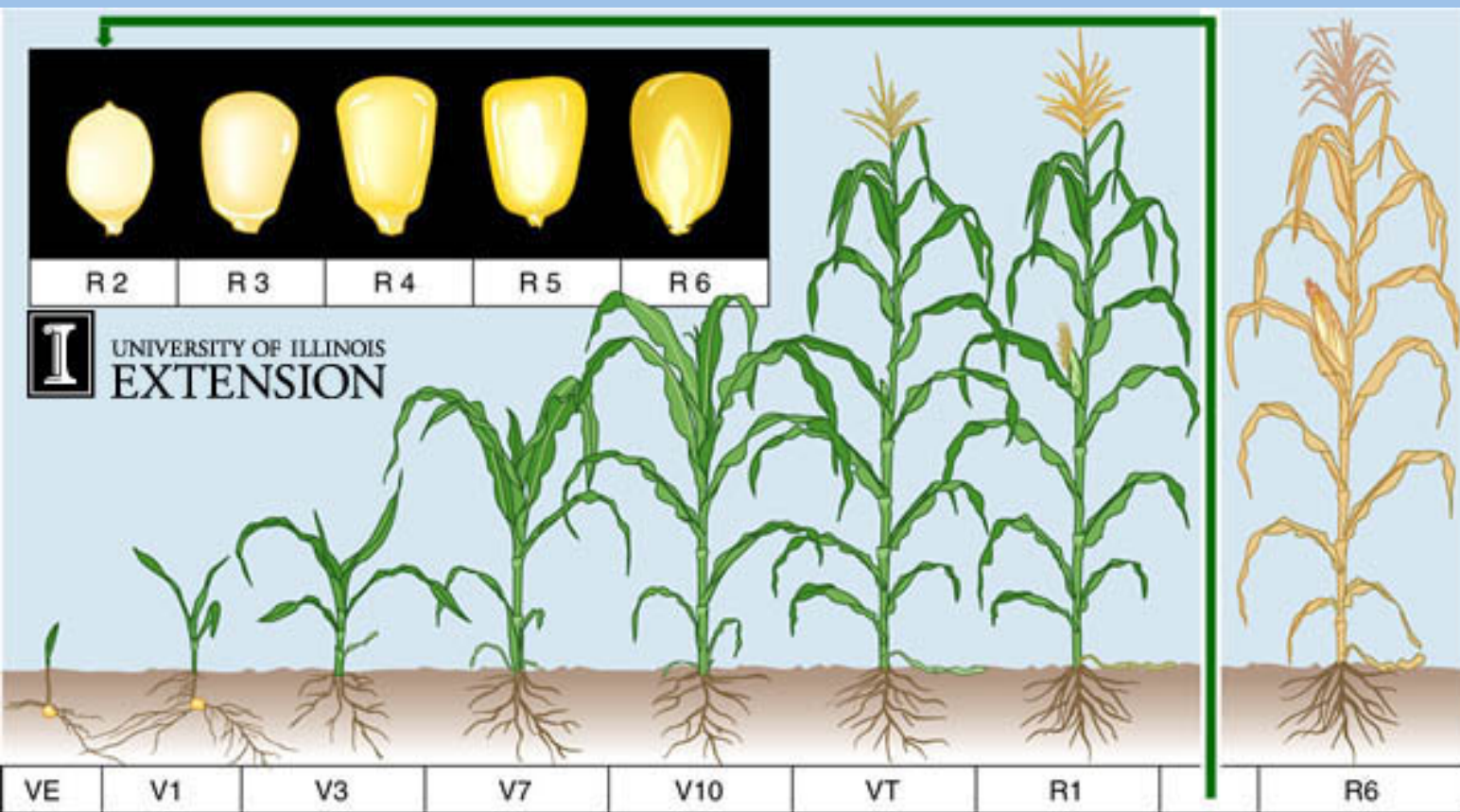


$$\text{GDD} = (\text{High} + \text{Low})/2 - \text{Base}_{50}$$

$$20 = (80 + 60)/2 - 50$$

Corn Growing Degree Day or Heat Units

- Use the high and low temperature for the day:
 - If the high is greater than 86°, set to 86°
 - If the low is less than 50°, set to 50°
 - Average the high and low
 - Subtract from base temperature of 50°
 - Example:
 - $\text{High (80°) + Low (60°) / 2 = Average(70°)}$
 - $\text{Average(70°) - Base(50°) = 20 growing degree days}$



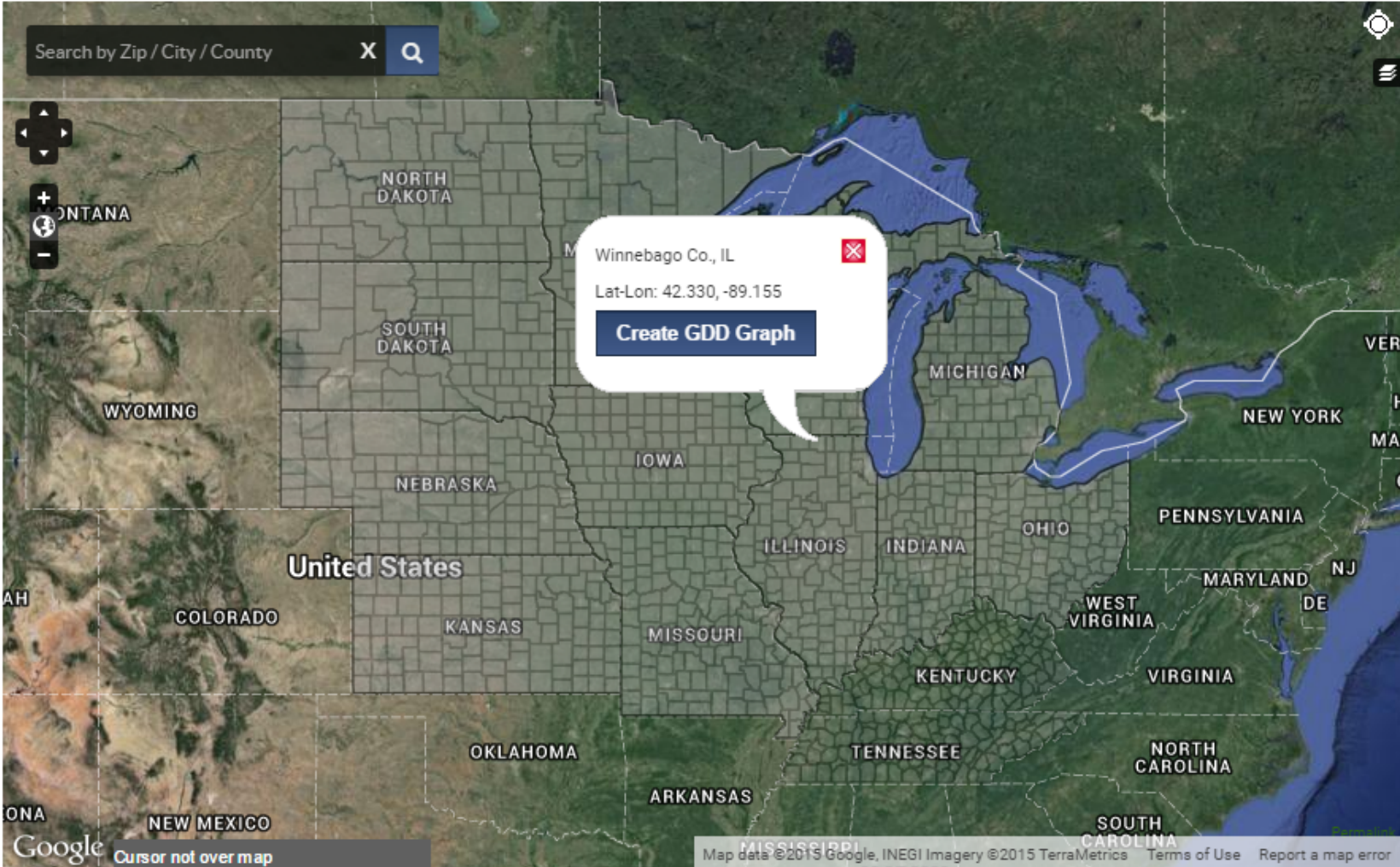
360 GDD to reach V1 after planting

For Example:

[Map](#) [Animations](#) [Feedback?](#) [About GDD](#)

To get started, click on any location within the gray area of the map.

Search by Zip / City / County X Q

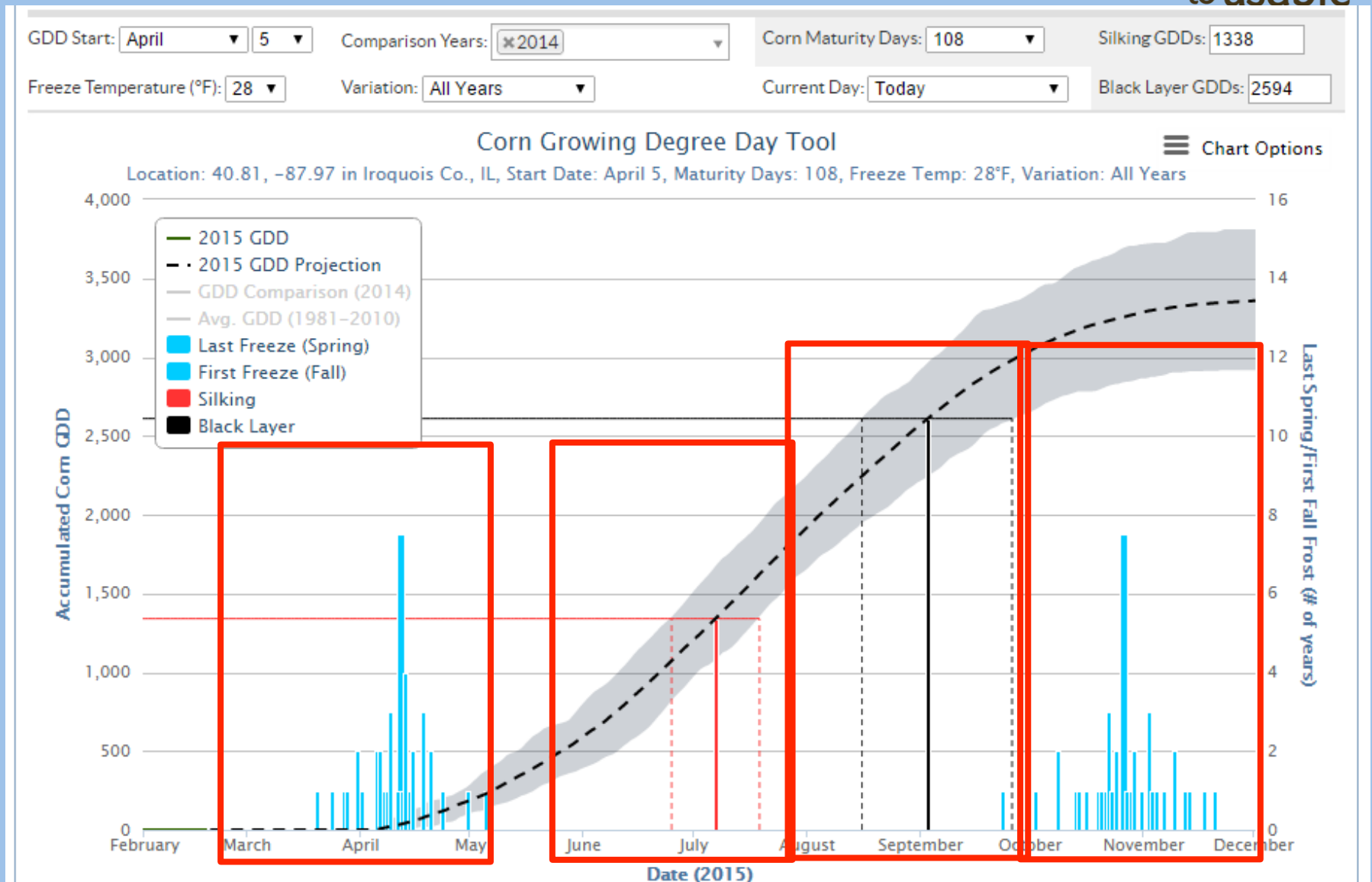


Winnebago Co., IL
Lat-Lon: 42.330, -89.155
[Create GDD Graph](#)

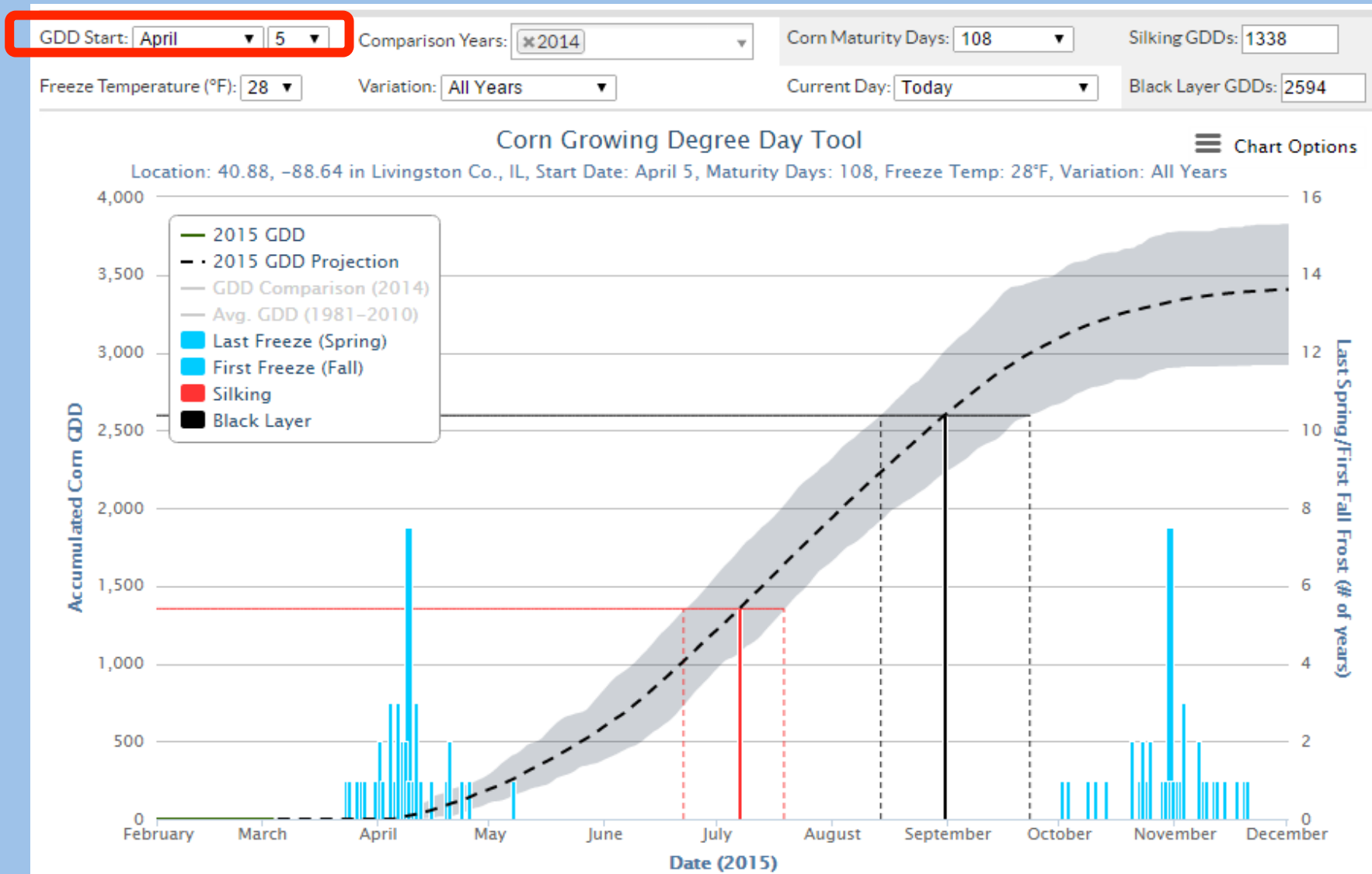
Cursor not over map

Map data ©2015 Google, INEGI Imagery ©2015 TerraMetrics Terms of Use Report a map error

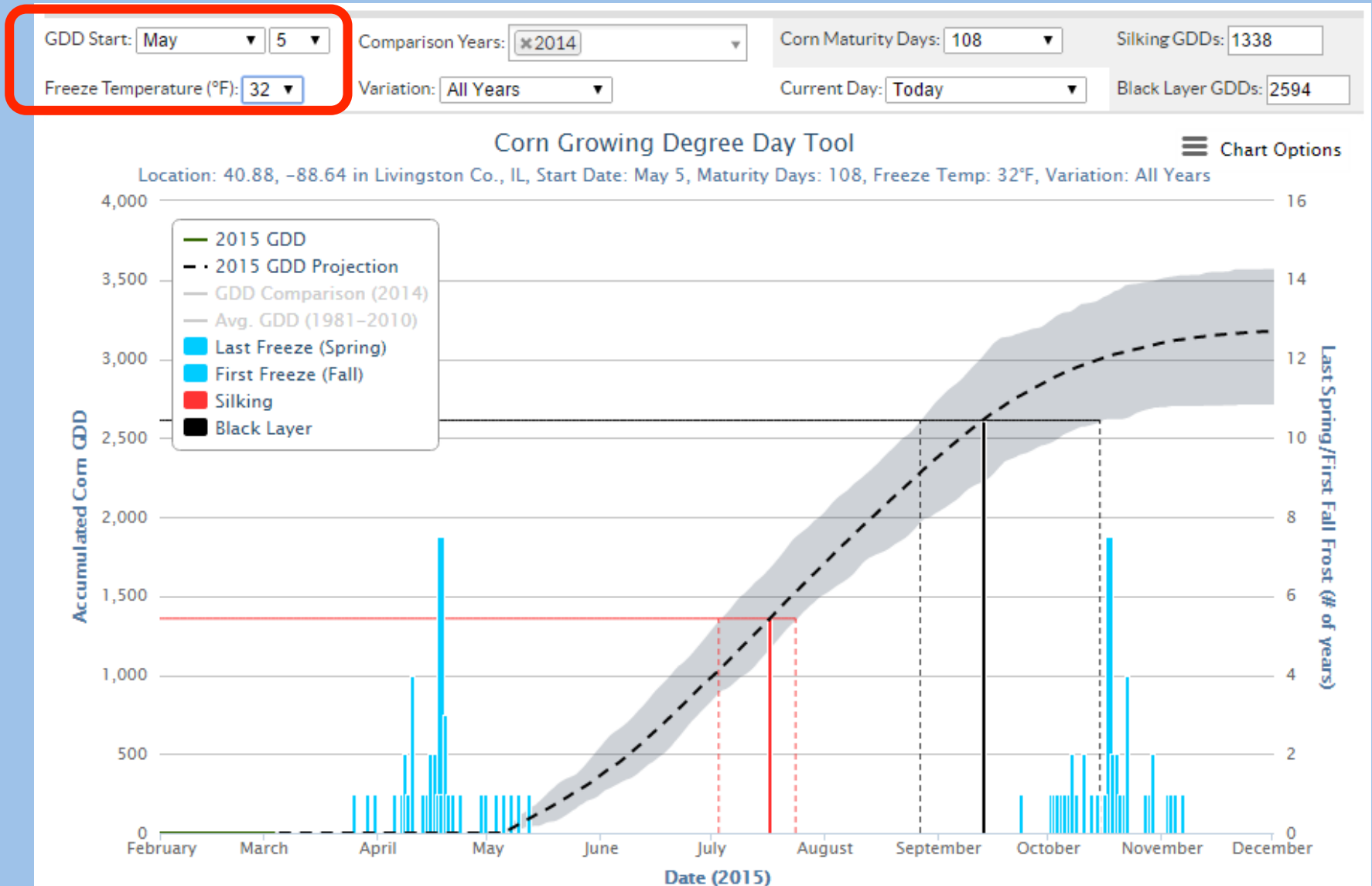
GDD Graph



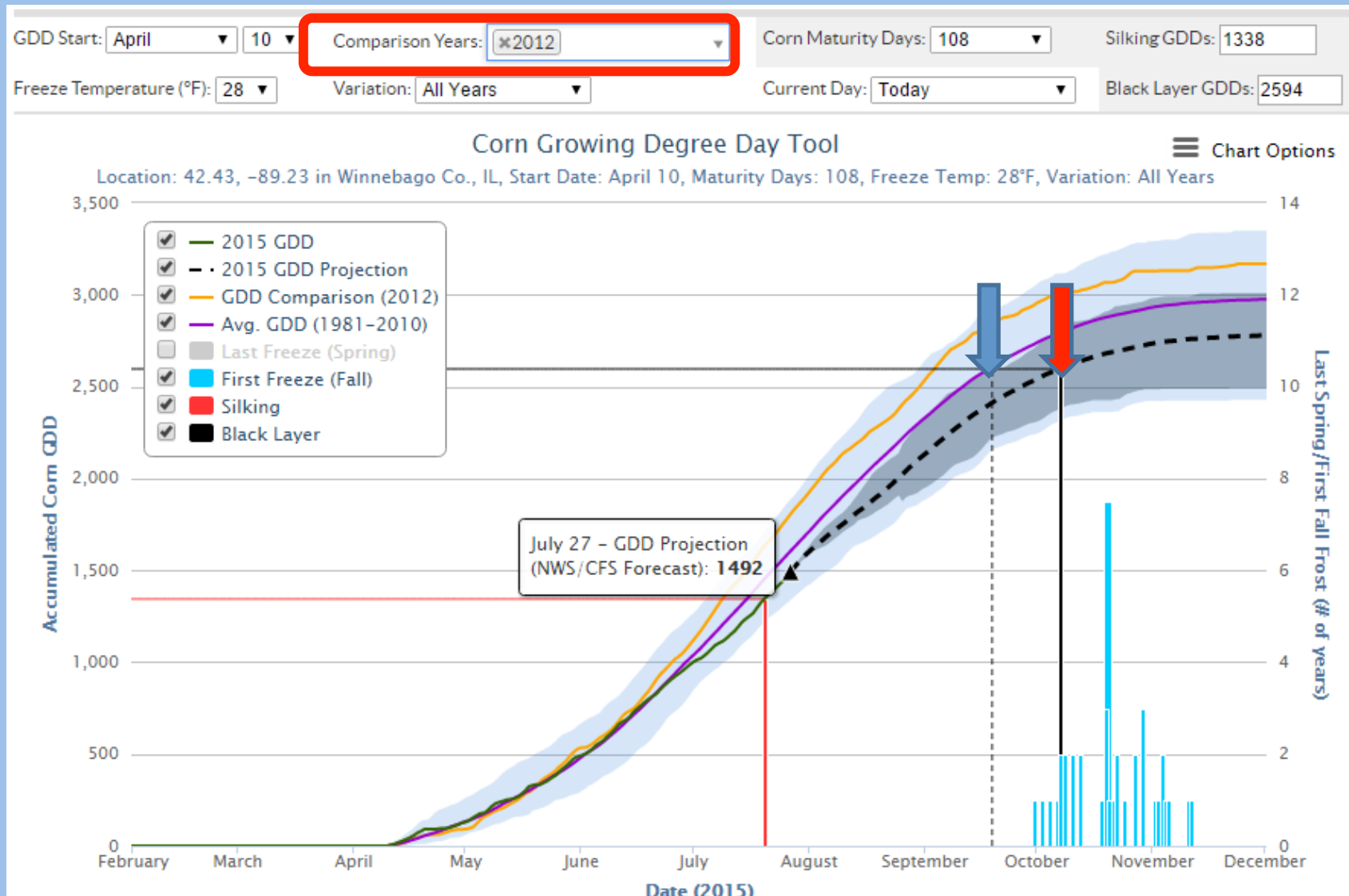
Adjust for Planting Date



Adjust for Planting Date & Temperature

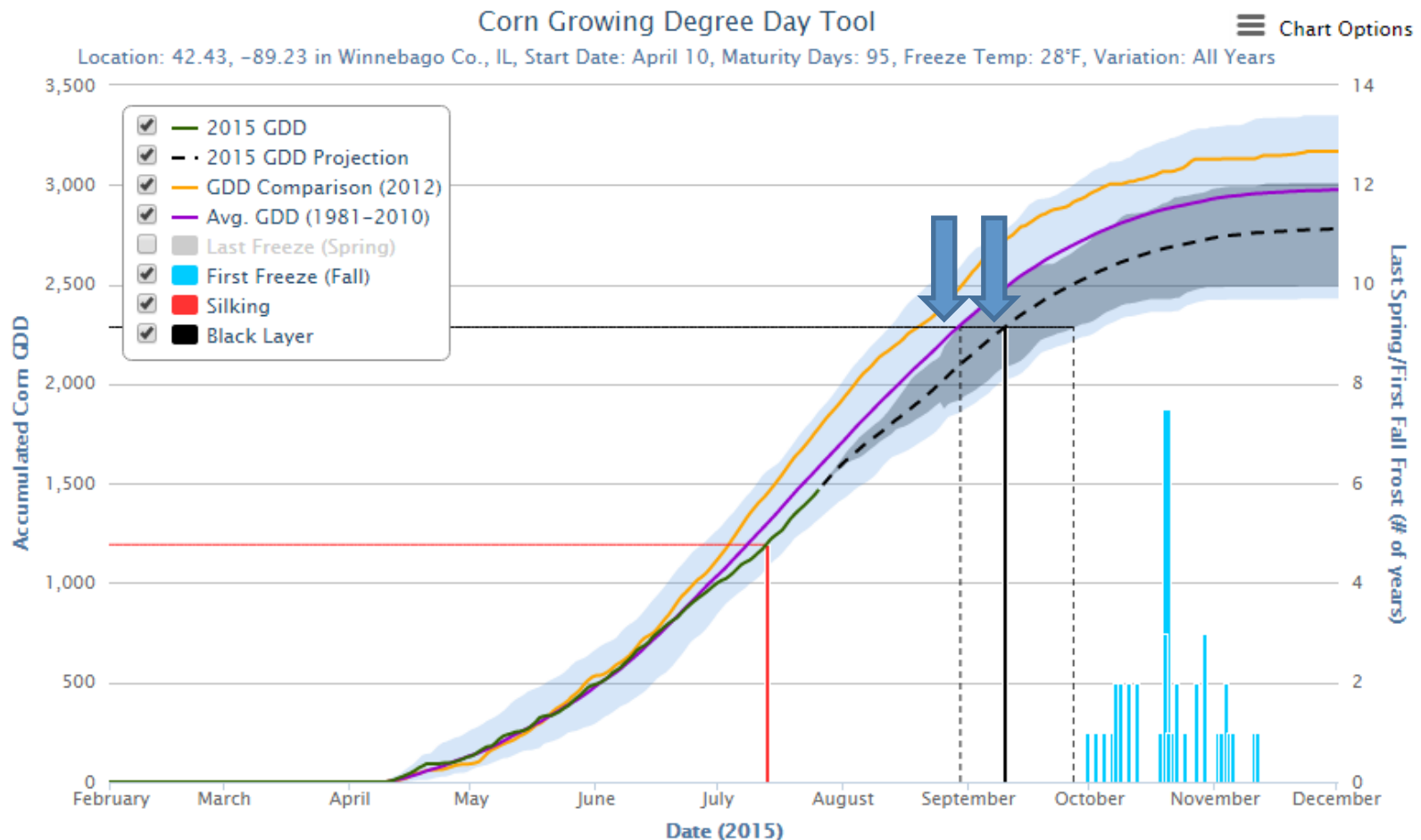


Comparison Year - 2014



Crop Maturity Date

GDD Start: April 10 Comparison Years: *2012 Corn Maturity Days: 95 Silking GDDs: 1189
Freeze Temperature (°F): 28 Variation: All Years Current Day: Today Black Layer GDDs: 2280



GDD Base 50/86 (degrees F); Created: 07/27/2015

Data Details and Download



[Map](#) [Graph](#) [Data](#) [Animations](#)

This tab provides a text-only view of current and historical Corn (86/50) GDD accumulations, silking and black layer dates, and first/last freeze dates.

GDD Start: May 1

GDD Comparison Year: 2009

Corn Maturity Days: 108

Silking GDDs: 1338

Freeze Temperature (°F): 32

Variation: All Years

Current Day: Today

Black Layer GDDs: 2594

User Input Summary

Location (lat, long):	42.036, -93.506
Location (county, state):	Story Co., IA
GDD Start Date:	May 1, 2014
Today's Date:	September 26, 2014
Latest Data Available:	September 25, 2014
Corn Maturity Days:	108 days
Growing Degree Days to Silking:	1338
Growing Degree Days to Black Layer:	2594

Corn Growing Degree Day (GDD) Results

	This Year (2014)	Average	Occurs within this range for all years
GDD Accumulation (May 1 - September 25)	2459	2631	2296 - 2975
V2 Date	May 31	June 2	May 24 - June 12
V4 Date	June 9	June 11	June 3 - June 19
V6 Date	June 19	June 20	June 12 - June 27
V8 Date	June 26	June 28	June 18 - July 4
V10 Date	July 6	July 5	June 25 - July 12
Silking Date	July 22	July 19	July 10 - July 26
Blacklayer Date (Estimated (Earliest-Latest))	October 8 (October 3 - October 30)	September 22	September 1 - None

Freeze Results (32°F)

Last Spring Freeze	April 19	April 25	April 4 - May 14
Freeze Probability after May 1	37%		
First Fall Freeze		October 5	September 18 - October 24
Freeze Probability before Black Layer	58%		

☐ **Accumulated GDD Details**

Tool Tips:

- Select the blue question mark icon in the top right corner of the tab section for instructions and other information.

[Download Data](#) [About GDD](#)

GDD TOOL

- Climate risks:
 - like spring/fall frost
 - late planting
- Plan activities – based on current and projected GDDs
- Marketing – locally, and across region

Thank You

Don't Forget the Hands-On Sessions Tomorrow at
12:30 and 1:30

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- Twitter: [@JimAngel22](https://twitter.com/JimAngel22)